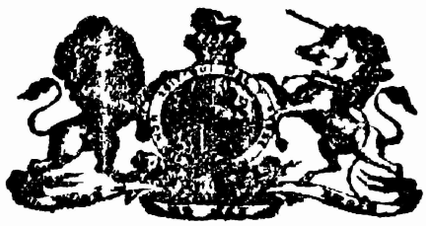
REPORT

ON THE

ARBORICULTURAL OPERATIONS,

N.-W. PROVINCES AND OUDH,

For the year ending 31st March, 1893.



ALLAHABAD:

PRINTED AT THE NORTH-WESTERN PROVINCES AND OUDH GOVERNMENT PRESS.

1893.

BENGAL SECRETARIAT

No. $\frac{96}{VI-1}$ of 1893.

From

J. O. MILLER, Esq.,

Director of Land Records and Agriculture,
North-Western Provinces and Oudh,

To

The CHIEF SECRETARY to GOVERNMENT,
North-Western Provinces and Oudh.

Dated Lucknow, the 8th November 1893.

Sir,

In accordance with the instructions conveyed in your letter No. $\frac{2582}{I-218}$, dated 12th September 1893, I have the honor to submit a separate report on Arboriculture for the year ending 31st March 1893.

2. *Length of avenues.*—The total length of avenues at the beginning of the year was 7,614 miles, to which 185 miles of new avenue have been added. At the end of last year, the length of avenues was returned as only 5,447 miles, and the increase this year is owing to the bringing into the statements of many avenues hitherto omitted. During the cold weather, I noticed that some roads with excellent avenues were entirely omitted from the returns, and directed that all avenues should be shown whether actually under operation or not. The object of the return is to show in each district the total length of road, and the total length planted up to date, as well as to give information of the work actually in progress during the year. From the reports of several Boards it appears that the returns must still be looked on as liable to correction.

3. *Avenues on first-class roads.*—The total length of first-class roads is given in the district returns at 4,674 miles, of which 3,539, or 76 per cent. of the total length, have been planted with avenues up to the present.

In Muzaffarnagar, Muttra, Agra and Ballia, the whole of the first-class roads are shown as provided with avenues, and this is practically the case in Etáwah, Sháhjahánpur, Benares and Fyzabad. The only districts in which more than half of the length of first-class roads is still unplanted are Aligarh, Moradabad and Fatehpur. Moradabad, with only 27 miles planted out of 88 miles of road, shows most scope for improvement.

4. *Avenues on other roads.*—On the second-class roads 2,680 miles, out of 7,016, or 38 per cent. of the total length, have been planted. Muttra is the only district which shows the total length of second-class road as planted. Of third-class roads 13 per cent., and of fourth-class roads 5 per cent. of the total length are shown as provided with avenues. Planting on third-class roads has been carried out to a large extent in Muzaffarnagar, Etáwah, Sháhjahánpur, Cawnpore, Allahabad, Unáo and Gonda. It is on these roads probably that assistance from private persons has been most freely obtained. Allahabad is the only district that reports very substantial progress in planting up fourth-class roads; and, except when the work can be satisfactorily entrusted to private persons, it is not ordinarily desirable that the Boards should turn their attention to such roads at present, while so much work remains to be done on roads of a better class.

5. *Mileage of avenues, &c.*—The following table shows by divisions the mileage of avenues and the number of trees planted during the year :—

Division	Length of avenues under operation during 1892-93	Total length of avenues at the close of 1891-92.	Length of new avenues planted during 1892-93.	Total length of avenues at the close of 1892-93	Total number of trees planted during 1892-93.
Meerut	473	707	28	735	20,609
Agra	516	1,361	13	1,374	20,478
Rohilkhand... ...	437	702	25	727	6,119
Allahabad	898	1,701	34	1,735	23,215
Benares	325	737	17	754	6,828
Gorakhpur . ..	157	402	13	415	1,463
Kumaun	43	40	3	43	1,284
Lucknow	386	802	41	843	5,908
Fyzabad	497	1,162	11	1,173	9,363
Total ...	3,732	7,614	185	7,799	95,387

The districts in which the largest additions of new avenues were made were Bulandshahr (18 miles), Moradabad (19), Bánda (15), Jaunpur (10), Basti (13) and Hardoi (31). The total expenditure on avenues was Rs. 58,746, as compared with Rs. 59,987 in the preceding year. Of the total expenditure Rs. 46,141 was spent on the maintenance of avenues planted previously, and Rs. 12,605 on new avenues.

6. *Supervision of road side arboriculture.*—In most districts arboriculture is under the immediate management of the Tahsíldárs. In a few cases assistance is received, in accordance with orders issued when the work was first made over to this Department, from the District Engineer, but new rules as to the terms on which such assistance is to be given have recently been issued, and the Chairman, District Board, Muttra, reports that the Public Works Department declined to allow the District Engineer of that district to look after the trees on the roads over which he travels. The new procedure has been made the subject of a separate reference. In the Saháranpur district, the Superintendent of the Botanical Gardens has been placed in charge of arboriculture, and his advice has been made available to neighbouring District Boards, who may wish to consult him.

7. *Necessity of protection for young trees.*—One of the great difficulties in the way of extending arboriculture, especially along distant roads, is the expense of efficiently protecting and watering the young trees; and there is still a tendency on the part of Tahsíldárs, which has been noted in several reports, to extend operations, without reference to the possibility of giving efficient protection to the trees planted from the funds at their disposal. The Collector of Jhansi states "in this climate the maintenance of young avenues is a matter of some difficulty and expense, and I have found it necessary to restrain Tahsíldárs from putting down numbers of trees that they have no means of protecting;" and the Deputy Commissioner of Rae Bareli notes the tendency to attach more importance to the number of trees planted than to the number successfully established.

8. *Tree-guards.*—The necessity of giving thorough protection to young trees cannot be too strongly insisted on. Fences of thorns are apt to be broken down unless very carefully looked after; and mud *tháolas* get washed down in the rains. The Superintendents of the Lucknow and Saharanpur gardens, whose experience of tree-planting gives much weight to their opinion, attach great importance to the use of an efficient tree-guard, and the following extract from the report of the Chairman of the Saharanpur Board will show how the difficulty of combining economy with efficiency is being got over in that district :—

"One of the chief difficulties in carrying trees through the stage of attention is the want of an efficient and cheap protective *tháola*. Funds will only allow of the usual mud wall and ditch being made use of, but in places where a good deal of sand enters into the composition of the soil, the mud walls usually fall down

after the first shower of rain. The Superintendent of the Gardens considers the brick *thálas* the most efficient contrivance for the protection of roadside trees, but as the funds at my disposal preclude the use of these, he has recommended the use of a tree-guard made of iron wire netting. He estimates that efficient guards of the kind can be made up at a cost of Re. 1-2-0 each, but he can only make it at the price if allowed to purchase the netting from a particular firm in England."

9. *Irrigation.*—Most of the reports are silent as to the method adopted for watering the young trees. The *gharra* system is in force in Benares, and has recently been reintroduced in Hamirpur, where it had been given up. In Jhánsi it is proposed to arrange for the purchase of water-carts, a method that was tried with success many years ago in the similarly-situated district of Bánda.

10. *Description of trees planted.*—The trees planted on roadsides are usually of the kinds allowed in the circulars issued from the Department, but in some cases trees that are not in the list, such as the *Síris* and *Kachnár*, are still planted. As the orders on the subject have recently been reissued, it is probable that trees like these, which are very unsuitable for avenue purposes, though one of them, the *Síris*, is a very common tree in many fine old avenues, will not be planted in future. I take this opportunity of bringing to the notice of the District Boards a suggestion made by Captain Chapman at the Agricultural Conference that the *Mahowa* (*bassia latifolia*) should be much more freely grown than at present in districts suitable for it as a good avenue tree, and one from the flowers of which a large income may be expected. Another tree, the growth of which should be encouraged in suitable places, is the *Babul* (*acacia arabica*), the value of which for many purposes is apt to be overlooked by those who regard arboriculture merely from the point of view of good roadside avenues. As ordinarily grown, it is not a good avenue tree; though when carefully trained and planted in a suitable soil few are better; but at present I do not go beyond advocating its encouragement on the smaller roads, and in places where the finer avenue trees will not grow or are not required. I have read with surprise in one report an approving remark regarding the steady war, which is said to have been waged for some years, against these obnoxious trees; and, as such views, if indiscriminately acted on, may lead to much harm, I make the following extract from the remarks on arboriculture on the Jalaun-Cawnpore road by the Commissioner of Allahabad, whose authority will be recognised.

"The restitution of *Babul* avenues on the main roads is a most useful project: after all, there is nothing like *Babul* for these highways. They will not grow quite as easily as supposed and require care; but they repay it in present shade and value of timber."

11. *Assistance from private persons.*—Special notice is made of the assistance received from private individuals in the districts of Cawnpore, Fatehpur, Allahabad, Jaunpur, Ballia, Gorakhpur, Rae Bareli, Hardoi, Gonda and Bahraich. In Allahabad, it is stated that private persons are showing increasing interest in the work; while from Jaunpur, on the other hand, the Chairman reports that the agricultural population have a rooted aversion to roadside avenues, on account of the damage done by shade to their fields, and that applications by private persons to plant roads are often meant merely to forestall genuine tree-planting by the Board. The applicants get permission and plant trees that are not intended to thrive. It is hardly possible that so unsatisfactory a state of things should have arisen without some reason for it in the method of tree-planting adopted in this district. On wide roads no serious damage to the fields need be apprehended if the trees are properly placed. On narrow roads some care should be taken in the selection of trees. Trees like the *Babul* can do no harm in such places, and operations should be carried on so as to gain the co-operation, not to arouse the opposition, of the rural population. In Farukhabad there are frequent disputes regarding property in trees alleged to have been planted by private persons. Such planting should not be allowed, except under strict supervision, and a record should be kept of all trees that do not belong to Government. On first-class roads, I think that no private arboricultural operations should be allowed. Instructions on the subject have been included in the compilation of arboricultural circulars recently issued.

12. *Nurseries.*—The number of nurseries maintained during the year increased from 204 to 220. At the beginning of the year there were 2,44,115 trees in the nurseries, and 1,70,991 were added, while 1,29,752 were taken out, leaving 2,85,354 in stock at the close of the year. The only districts without nurseries are Bareilly and Benares, where trees are purchased locally, or obtained from the public gardens. There are 90 groves, covering 634 acres, also under the management of the Boards.

13. *Expenditure and Income.*—In Appendix D. details are given of the expenditure and income of each district during the last five years. Figures for the year under report for each division are given in the following statement :—

Division.	Charges.				Receipts		
	Avenues	Groves and nurseries	Loppings and fellings.	Total	Loppings and fellings	Fruits, grass, &c	Total
Meerut	11,395	2,066	120	13,581	8,627	1,118	9,745
Agra .	9 404	1 776	111	11,291	3,862	2,060	5,922
Rohilkhand ..	7,423	613	37	8,073	2,414	5,563	7,977
Allahabad .	14,322	2,811	161	17,294	2,027	1,944	3,971
Benares ...	4,910	1,127	63	6,100	1,624	3,569	5,193
Gorakhpur	2,088	720	342	3,150	957	885	1,842
Kumaun	240	821		1,061	6	96	102
Lucknow	4,061	1,898	57	6,016	1,893	1,025	2,918
Fyzabad ..	4,903	611	149	5,663	2,289	1,978	4,267
Total ...	58,746	12,443	1,040	72,229	23,699	18,238	41,937

The expenditure amounted to Rs. 72,229, as compared with Rs. 72,162 in the previous year, and the receipts to Rs. 41,937, as compared with Rs. 38,349. The actual cost to Government was thus Rs. 30,292, as compared with Rs. 34,113.

14. *Receipts.*—In Bulandshahr, Bijnor, Pilibhít, Benáres, Gonda and Partábgarh, the income exceeded the expenditure. There was a considerable increase in the receipts in the following districts :—

	1891-92.	1892-93.
	Rs.	Rs.
Bulandshahr	3,032	3,860
Aligarh	1,153	2,021
Bareilly	1,236	1,826
Budaun	715	1,094
Pilibhít	1,017	1,352
Allahabad	476	1,202
Benares	751	2,901
Mirzapur	167	783
Basti	95	654
Rae Bareli	112	254
Hardoi	262	757
Gonda	270	822
Partabgarh	286	842

In some cases the increase was fortuitous, in others it is shown by the reports to have been the result of more attention to the management. In Allahabad, where arboriculture was evidently looked after carefully, the officer in charge expresses a hope that receipts may be made to cover expenditure. In Basti the increase was owing to the carrying out of the Commissioner's directions about loppings. On the other hand, there has been a very marked decline in receipts in the northern districts of the Meerut division. Two years ago the receipts in this Division were Rs. 21,360; last year they were Rs. 11,580; this year they are Rs. 9,745. The decrease is specially noticeable in Muzaffarnagar and Meerut, and is attributed in the former district to there being less

dead wood for sale owing to fewer storms, and to there not being funds for lopping. The decrease in Meerut has not been explained. The length of avenues in this district is comparatively small, and the large income of a few years ago may have been due to some exceptional cause. In Muttra and Cawnpore, a considerable decrease is due to accidental circumstances, but the latter district, with 163 miles of avenues on first class roads alone, might have been expected to do better. As was pointed out last year, the Bundelkhand districts are those in which arboriculture is most expensive to carry on, and it is no doubt more difficult to improve the income in these tracts than elsewhere. Other districts, in which the income, with less reason, is very low, are Etawah (Rs. 203) and Ballia (Rs. 61).

15. *Tree-planting otherwise than on roadsides.*—In addition to the planting of roadside trees, the District Boards have occasionally undertaken the planting up of encamping grounds, and more rarely of waste places. The planting of encamping grounds, many of which are at present entirely destitute of shade, is likely to be a most useful work. The best example of successful planting on waste land is the Fisher forest, near Etáwah, where a very large area of ravines has been covered, chiefly with *Babul* trees. This plantation was inspected during the year by the Superintendent of the Saháranpur Gardens to advise as to the planting of other varieties of trees : and I had recently an opportunity of visiting it. The grass underneath the *Babuls* was then (the beginning of October) very thick, and in most places from three to four feet high, and I understand that the sale proceeds of the grass alone bring in a good return to the zamíndars after all expenses of management are paid. In Cawnpore and the adjoining districts, instructions drawn up by this Department have been circulated recommending the planting of waste places with *Babul*, for the bark of which there is now a great demand in the leather-factories. There are many districts so well-wooded that further encouragement to private tree-planting is not required, but there are tracts, as for example in parts of the Meerut and Rohilkhand Divisions, where much good would be done if the villagers were encouraged to plant more freely on their own account. Where village groves do exist in these parts they are immensely prized, and a religious sanction is sometimes devised to preserve them from the axe.

16. It was suggested by Government last year that instructions on various points connected with arboriculture should be issued. Complete instructions were issued many years ago, but had, in many cases, been lost sight of. These were revised, and a compilation in book form of all circulars issued on the subject has now been circulated to all districts. In this all information that is required regarding the growing of trees in nurseries, their transplantation, protection and irrigation is given.

17. At present, however, the most important measure for the improvement of roadside arboriculture is that District Boards should be able to exercise a closer control over the Tahsíldárs, in whose hands the actual work of tree-planting must ordinarily be left. For this purpose I have advised the preparation of an arboricultural map in each district to show clearly the sections of road planted up in each year. From most districts I have already received sketch maps showing the position of the various avenues as well as of the work undertaken last year, and if my suggestion is adopted and similar maps on a larger scale are prepared for use in the district, the inspection of work already done, and the planning out of future operations will be greatly facilitated.

18. A great deal of excellent work in the promotion of arboriculture has been done by District Boards in many parts of the Province, and avenues of young trees may be seen with scarcely a single blank. On the other hand, there has undoubtedly been waste in many cases from the planting out of immature and inefficiently protected seedlings : and roads may be found with a few scattered trees of very varying ages, which are apparently the survivals of successive unsuccessful attempts to form an avenue. Much allowance must be made for the very great difficulty of establishing young trees, especially on distant roads; but better results would be obtained if

some such arrangement as has been suggested in the preceding paragraph for securing continuity of supervision were adopted. The report is accompanied by the following appendices :—

A—Showing the lengths planted and unplanted of each class of road in each district.

B—Giving statistics of the operations of the year on Roads, Groves and Nurseries.

C—Showing detail of Receipts and Expenditure in 1892-93.

D—Comparing the total Receipts and Charges in each district during the last six years.

I have the honor to be,

SIR,

Your most obedient servant,

J. O. MILLER,

Director.

APPENDIX A.

Statement showing the extent to which the various classes of roads have been planted in each district up to the end of 1892-93.

	First-class roads.			Second-class roads.			Third-class roads.			Fourth-class roads.			Total.		
	Length.	Avenue.	Unplanted	Length.	Avenue.	Unplanted	Length.	Avenue.	Unplanted	Length.	Avenue.	Unplanted	Length.	Avenue	Unplanted
Dehra Dún	14	8	6	26	8	18	...	...	...	...	...	...	40	16	24
Saháranpur	82	66	16	276	57	219	73	...	73	52	...	52	483	123	360
Muzaffarnagar	62	62	...	173	93	80	149	62	87	29	...	29	413	217	196
Meerut	155	97	58	104	...	104	214	4	210	49	...	49	522	101	421
Bulandshahr	149	113	36	108	68	40	138	14	124	246	...	246	641	195	446
Aligarh	195	74	121	66	6	60	235	4	231	64	...	64	560	84	476
Total, Meerut Division ...	657	420	237	753	232	521	809	84	725	440	...	440	2,659	736	1,923
Muttra	168	168	...	119	119	...	51	...	51	135	...	135	473	287	186
Agra	130	130	...	201	99	102	201	...	201	59	...	59	591	229	362
Farukhabad	147	129	18	259	40	219	419	19	400	200	3	197	1,025	191	834
Mainpuri	185	121	64	127	27	100	63	2	61	22	...	22	397	150	247
Etáwah	77	76	1	128	107	21	331	178	153	...	...	...	536	361	175
Etah	133	82	51	194	64	130	84	7	77	212	3	209	623	156	467
Total, Agra Division ...	840	706	134	1,028	456	572	1,149	206	943	628	6	622	3,645	1,374	2,271
Bareilly	133	103	30	85	59	26	102	24	78	...	...	...	320	186	134
Bijnor	34	25	9	107	39	68	438	7	431	51	...	51	630	71	559
Budaun	93	76	17	109	43	66	259	17	242	102	4	98	563	140	423
Moradabad	88	27	61	206	37	169	311	32	279	...	...	...	605	96	509
Sháhjahánpur	98	92	6	79	52	27	126	50	76	89	1	88	392	195	197
Pilibhít	12	11	1	118	27	91	162	1	161	19	...	19	311	39	272
Total, Rohilkhand Division ...	458	334	124	704	257	447	1,398	131	1,267	261	5	256	2,821	727	2,094
Cawnpore	171	163	8	96	45	51	623	204	419	136	33	103	1,026	445	581
Fatehpur	183	89	94	126	3	123	152	...	152	77	...	77	538	92	446
Bánda	112	72	40	45	20	25	103	14	89	406	18	388	666	124	542
Hamírpur	80	59	21	115	21	94	81	31	50	215	....	215	491	111	380
Allahabad	171	153	18	156	108	48	99	76	23	383	105	278	809	442	367
Jhánsi	274	234	40	221	97	124	607	93	514	139	...	139	1,241	424	817
Jalaun	116	80	36	69	8	61	248	5	243	234	3	231	667	96	571
Total, Allahabad Division ...	1,107	850	257	828	302	526	1,913	423	1,490	1,590	159	1,431	5,438	1,734	3,704
Benares	126	121	5	229	164	65	133	38	95	92	11	81	580	334	246
Mirzapur	112	83	29	38	18	20	...	...	...	...	...	...	150	101	49
Jaunpur	175	126	49	97	57	40	253	9	244	55	1	54	580	193	387
Gházipur	113	61	52	74	3	71	250	...	250	160	...	160	597	64	533
Ballia	26	26	...	60	19	41	215	17	198	86	...	86	387	62	325
Total, Benares Division ...	552	417	135	498	261	237	851	64	787	393	12	381	2,294	754	1,540
Gorakhpur	60	54	6	474	157	317	494	17	477	...	...	...	1,028	228	800
Basti	67	56	11	159	34	125	461	...	461	...	...	...	687	90	597
Azamgarh	105	64	41	54	33	21	...	...	...	...	...	...	159	97	62
Total, Gorakhpur Division ...	232	174	58	687	224	463	955	17	938	...	...	...	1,874	415	1,459
Almora	...	...	...	42	35	7	...	...	...	...	...	...	42	35	7
Garhwáli	...	...	...	466	8	458	666	...	666	...	...	...	1,132	8	1,124
Naini Tal	...	...	...	...	...	..	...	...	...	...	..	...	...	...	
Total, Kumaun Division ...	...	...	...	508	43	465	666	...	666	...	...	...	1,174	43	1,131
TOTAL, N.-W. PROVINCES. ...	3,846	2,901	945	5,006	1,775	3,231	7,741	925	6,816	3,312	182	3,130	19,905	5,783	14,122
Lucknow	96	79	17	94	10	84	34	...	34	67	...	67	291	89	202
Unao	80	55	25	178	77	101	200	83	117	41	8	33	499	223	276
Rae Barelí	66	37	29	117	53	64	...	...	...	...	...	...	183	90	93
Sitapur	128	95	33	76	36	40	313	24	289	33	...	33	550	155	395
Hardoi	52	37	15	207	113	94	268	45	223	71	2	69	598	197	401
Kheri	12	7	5	58	33	25	374	49	325	189	...	189	633	89	544
Total, Lucknow Division ...	434	310	124	730	322	408	1,189	201	988	401	10	391	2,754	843	1,911
Fyzabad	74	73	1	175	131	44	325	13	312	176	...	176	750	217	533
Gonda	79	60	19	235	160	75	153	121	32	125	18	107	592	359	233
Bahraich	...	...	...	116	64	52	365	56	309	121	5	116	602	125	477
Sultánpur	72	53	19	237	1	236	77	...	77	396	...	396	782	54	728
Pártabgarh	49	40	9	231	52	179	130	11	119	158	...	158	568	103	465
Bara Banki	120	102	18	286	175	111	93	18	75	101	20	81	600	315	285
Total, Fyzabad Division ...	394	328	66	1,280	583	697	1,143	219	924	1,077	43	1,034	3,894	1,173	2,721
TOTAL, OUDH ...	828	638	190	2,010	905	1,105	2,332	420	1,912	1,478	53	1,425	6,648	2,016	4,632
TOTAL, N.-W. P. AND OUDH ...	4,674	3,539	1,135	7,016	2,680	4,336	10,073	1,345	8,728	4,790	235	4,555	26,553	7,799	18,754

APPENDIX B.

Statement showing the length of miles planted with trees and the number of nurseries and groves maintained in each district during the year 1892-93.

	Roads.							Groves.				Nurseries.					
	Length of avenues.			Miles under operation.													
	Length of avenues at the end of 1891-92.	Length of avenues planted in 1892-93.	Total length of avenues at the end of 1892-93.	Planted in previous year.	New.	Total.	Number of trees planted.	Number of groves.	Planted in previous year.	Planted during 1892-93.	Total.	Number of Nurseries.	Total number of trees at the close of 1891-92.	Trees planted during 1892-93.	Total.	Number of trees taken out during 1892-93.	Balance.
Dehra Dún ...	16	...	16	16	...	16	2,749	..	...	...	...	2	104	1,100	1,204	...	1,204
Saharanpur ...	122	1	123	46	1	47	2,925	...	..	...	...	1	9,465	3,310	12,775	4,608	8,167
Muzaffarnagar ...	212	4	216	125	4	129	2,545	3		52	52	1	4,989	6,795	11,784	2,728	9,056
Meerut ...	96	5	101	74	5	79	5,815	..		...	...	8	3,475	2,076	5,551	2,401	3,150
Bulandshahr ...	177	18	195	141	18	159	4,975	6	233	...	233	3	7,051	6,975	14,026	7,150	6,876
Aligarh ...	84	...	84	43	...	43	1,600	4	70	...	70	12	10,630	6,446	17,076	3,105	13,971
Total, Meerut Division ...	707	28	735	445	28	473	20,609	13	303	52	355	27	35,714	26,702	62,416	19,992	42,424
Muttra ...	287	...	287	34	...	34	2,602	4	1	...	1	1	1,799	2,220	4,019	2,107	1,912
Agra ...	229	...	229	73	...	73	5,857	...	...	...	...	7	11,433	9,624	21,057	8,671	12,386
Farukhabad ...	185	6	191	25	6	31	1,588	...	...	...	...	7	6,427	2,583	9,010	2,088	6,922
Mainpuri ...	143	7	150	53	7	60	2,901	4	23	...	23	1	5,284	1,788	7,022	4,097	2,925
Etáwah ...	361	...	361	162	...	162	1,188	...	...	...	...	4	3,684	1,295	4,979	1,812	3,167
Etah ...	156	...	156	156	...	156	6,342	...	...	...	...	2	13,762	7,820	21,582	9,656	11,926
Total, Agra Division ...	1,361	13	1,374	503	13	516	20,478	8	24	...	24	22	42,380	25,289	67,669	28,431	39,238
Bareilly ...	184	2	186	158	2	160	691	...	...	...	...	...	...	...	...	...	...
Bijnor ..	71	...	71	71	...	71	80	5	4	...	4	5	1,280	2 267	3,547	685	2,862
Budaun ...	140	...	140	72	...	72	1,443	1	2	...	2	4	4,625	7,092	11,717	1,611	10,106
Moradabad ...	77	19	96	20	19	39	3,016	...	...	...	...	2	4,472	1,000	5,472	1,750	3,722
Sháhjahanpur ...	195	...	195	81	...	81	...		...	...	...	3	11,133	5,970	17,103	2,238	14,865
Pilibhít ...	35	4	39	10	4	14	919	...	...	...	...	1	606	1,158	1,764	699	1,065
Total, Rohilkhand Division,	702	25	727	412	25	437	6,149	6	6	...	6	15	22,116	17,487	39,603	6,983	32,620
Cawnpore ...	440	5	445	55	5	60	1,188	2	17	...	17	7	6,645	652	7,297	4,043	3,254
Fatehpur ...	87	5	92	52	5	57	682	2	17	...	17	1	1,081	451	1,532	365	1,167
Bánda ...	109	15	124	109	15	124	2,732	2	4	...	4	19	8,569	3,834	12,403	5,252	7,151
Hamírpur ...	112	...	112	43	...	43	834	...	...	...	...	8	5,550	2,247	7.797	1,828	5,969
Allahabad ...	442	...	442	139	...	139	1,775	2	3	...	3	4	5,286	8,958	14,244	3,754	10,490
Jhánsi ...	418	7	425	418	7	425	14,719	15	47	...	47	12	10,628	5,209	15,837	8,726	7,111
Jalaun ...	93	2	95	48	2	50	1,285	...	...	...	...	9	4,849	2,981	7,830	1,824	6,006
Total, Allahabad Division,	1,701	34	1,735	864	34	898	23,215	23	88	...	88	60	42,608	24,332	66,940	25,792	41,148
Benares ...	333	...	333	32	...	32		6	22	...	22	...	...		...	...	...
Mirzapur ...	96	5	101	66	5	71	1,105	...	...	...	...	3	553	5,738	6,291	912	5,379
Jaunpur ...	183	10	193	165	10	175	3,573	8	2	1	3	13	6,275	6,019	12,294	3,623	8,671
Gházipur ...	63	1	64	15	1	16	1,197	2	5	..	5	1	9 037	340	9,377	1,330	8,047
Ballia ...	62	1	63	30	1	31	953	2	5	...	5	1	3,160	2,289	5,449	1,244	4,205
Total, Benares Division ...	737	17	754	308	17	325	6,828	18	34	1	35	18	19,025	14,386	33,411	7,109	26,302
Gorakhpur ...	228	...	228	112	...	112	...	2	33	...	33	5	15,011	1,852	16,863	8,248	8,615
Basti ...	77	13	90	6	13	19	880	2	6	...	6	2	949	1,885	2,834	810	2,024
Azamgarh ...	97	...	97	26	...	26	583	1	13	...	13	1	1,171	706	1,877	660	1,217
Total, Gorakhpur Division,	402	13	415	144	13	157	1,463	5	52	...	52	8	17,131	4,443	21,574	9,718	11,856
Almora ...	32		35	32	3	35	586	...	...	...	...	4	791	4,755	5,546	364	5,182
Garhwál ...	8	...3	8	8	...	8	698	...	...	...	...	2	16,801	8,537	25,338	4,385	20,953
Nani Tal ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total, Kumaun Division ...	40	3	43	40	3	43	1,284	...	...	..	...	6	17,592	13,292	30,884	4,749	26,135
Total, N.-W. P., ...	5,650	133	5,783	2,716	133	2,849	80,026	73	507	53	560	156	1,96,566	1,25,931	3,22,497	1,02,774	2,19,723
Lucknow ...	89	...	89	11	...	11	...	1	..	3	3	1	5,131	14,395	19,526	3,306	16,220
Unao ...	223	..	223	24	...	24	50	1	2	...	2	5	1,742	1,300	3,042	925	2,117
Rae Bareli ...	81	10	91	34	10	44	2,048	...	...	...	...	9	3,543	5,472	9,015	2,090	6,925
Sitapur ...	154	...	154	139	...	139	391	9	4	...	4	7	4,757	716	5,473	1,746	3,727
Hardoi ...	166	31	197	48	31	79	3,224	7	53	...	53	10	4,678	3,944	8,622	4,289	4,333
Kheri ...	89	...	89	89	...	89	285	...	...	...	...	1	1,560	388	1,948	347	1,601
Total, Lucknow Division...	802	41	843	345	41	386	5,998	12	59	3	62	33	21,411	26,215	47,626	12,703	34,923
Fyzabad ...	217	1	218	86	1	87	1,876	1	1	...	1	10	4,250	4,230	8,480	3,776	4,704
Gonda ...	358	1	359	65	1	66	585	...	...	...	...	2	973	727	1,700	437	1,263
Bahraich ...	124	1	125	49	1	50	85	...	...	...	...	3	2,866	1,100	3,966	2,015	1,951
Sultánpur ...	50	4	54	49	4	53	1,558	...	...	...	...	6	8,643	5,516	14,159	2,609	11,550
Partábgarh ...	100	3	103	100	3	103	1,629	1	3	...	3	2	1,950	1,662	3,612	1,629	1,983
Bara Banki ...	313	1	314	137	1	138	3,630	3	8	...	8	8	7,456	5,610	13,066	3,809	9,257
Total, Fyzabad Division ...	1,162	11	1,173	486	11	497	9,363	6	12	...	12	31	26,138	18,845	44,983	14,275	30,708
	1,964	52	2,016	831	52	883	15,361	17	71	3	74	64	47,549	45,030	92,609	26,978	65,631
Total, N.-W. P. & Oudh...	7,614	185	7,799	3,547	185	3,732	95,387	90	578	56	634	220	2,44,115	1,70,991	4,15,106	1,29,752	2,85,354

APPENDIX C.

Statement showing the arboricultural expenditure and receipts in each district of North-Western Provinces and Oudh during the year 1892-93.

	Expenditure on—						Receipts by—		
	Avenues.								
	Planted in previous years.	Planted in current year.	Groves.	Nurseries.	Lopping and felling.	Total.	Lopping and felling.	Fruits, grass, &c.	Total.
Dehra Dún	401	...	...	...	...	401	1	5	6
Saháranpur	1,304	80	...	566	35	1,985	634	94	728
Muzaffarnugar	2,264	579	...	335	25	3,203	1,747	60	1,807
Meerut	1,913	232	...	48	...	2,193	1,168	155	1,323
Bulandshahr	1,621	1,091	85	387	16	3,200	3,296	564	3,860
Aligarh	1,014	896	259	386	44	2,599	1,781	240	2,021
Total, Meerut Division ...	8,517	2,878	344	1,722	120	13,581	8,627	1,118	9,745
Muttra	1,532	...	...	109	6	1,647	756	70	826
Agra	922	1,676	...	1,128	...	3,726	1,363	403	1,766
Farukhabad	994	560	...	214	31	1,799	277	251	528
Mainpuri	783	779	48	142	60	1,812	615	895	1,510
Etáwah	945	...	...	63	...	1,008	191	12	203
Etah	1,213	...	...	72	14	1,299	660	429	1,089
Total, Agra Division ...	6,389	3,015	48	1,728	111	11,291	3,862	2,060	5,922
Bareilly	1,849	451	...	...	...	2,300	1,135	691	1,826
Bijnor	808	20	...	12	...	840	373	1,503	1,876
Budaun	929	...	44	240	35	1,248	291	803	1,094
Moradabad	535	999	...	62	2	1,598	293	1,000	1,293
Sháhjahánpur	1,384	...	...	100	...	1,484	225	311	536
Pilibhít	352	96	...	155	...	603	97	1,255	1,352
Total, Rohilkhand Division ...	5,857	1,566	44	569	37	8,073	2,414	5,563	7,977
Cawnpore	374	1,249	...	138	125	1,886	269	99	368
Fatehpur	910	368	51	59	12	1,400	603	178	781
Bánda	1,816	40	...	547	...	2,403	281	85	366
Hamírpur	1,090	6	...	407	24	1,527	310	71	381
Allahabad	940	...	468	388	...	1,796	261	941	1,202
Jhánsi	5,068	798	48	268	...	6,182	139	451	590
Jalaun	1,553	110	...	437	...	2,100	164	119	283
Total, Allahabad Division ...	11,751	2,571	567	2,244	161	17,294	2,027	1,944	3,971
Benares	1,086	...	114	...	...	1,200	530	2,371	2,901
Mirzapur	851	367	...	144	...	1,362	149	634	783
Jaunpur	1,524	141	162	367	44	2,238	586	218	804
Gházipur	597	50	81	153	19	900	309	335	644
Ballia	258	36	...	106	...	400	50	11	61
Total, Benares Division ...	4,316	594	357	770	63	6,100	1,624	3,569	5,193
Gorakhpur	981	90	200	166	47	1,484	118	646	764
Basti	56	251	84	192	287	870	595	59	654
Azamgarh	710	...	33	45	8	796	244	180	424
Total, Gorakhpur Division ...	1,747	341	317	403	342	3,150	957	885	1,842
Almora	110	190	...	60	...	300	...	...	...
Garhwál	...	...	...	761	...	761	6	96	102
Naini Tal	...	...	...	...	...	...	...	...	...
Total, Kumaun Division ...	110	190	...	821	...	1,061	6	96	102
Total, N.-W. Provinces ...	38,687	12,095	1,677	8,257	834	60,550	19,517	15,235	34,752
Lucknow	291	...	97	866	6	1,260	50	635	685
Unao	380	...	...	60	...	440	241	37	278
Rae Bareli	674	457	...	160	...	1,291	199	55	254
Sitapur	651	291	193	...	29	1,164	606	240	846
Hardoi	1,317	...	46	176	22	1,561	719	38	757
Kheri	...	...	...	300	...	300	78	20	98
Total, Lucknow Division ...	3,313	748	336	1,562	57	6,016	1,893	1,025	2,918
Fyzabad	699	29	...	72	...	800	304	42	346
Gonda	715	...	...	48	...	763	542	280	822
Bahraich	591	103	...	72	134	900	148	200	348
Sultánpur	828	118	...	54	...	1,000	225	374	599
Partábgarh	472	76	48	104	...	700	601	241	842
Bara Banki	836	436	103	110	15	1,500	469	841	1,310
Total, Fyzabad Division ...	4,141	762	151	460	149	5,663	2,289	1,978	4,267
Total, Oudh ...	7,454	1,510	487	2,022	206	11,679	4,182	3,003	7,185
Total, N.-W. P. and Oudh ...	46,141	12,605	2,164	10,279	1,040	72,229	23,699	18,238	41,937

APPENDIX D.

Statement showing Arboricultural receipts and charges from 1887-88 *to* 1892-93.

District.	Receipts.							Charges.						Total.	Average receipts per year.	Average expenditure per year.
	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.	Total.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	1892-93.			
Dehra Dún	33	5	...	102	11	6	157	400	400	448	497	363	401	2,509	26	418
Saháranpur	787	3,111	968	974	1,309	728	7,877	1,739	1,797	2,100	1,902	1,929	1,985	11,452	1,313	1,909
Muzaffarnagar ...	3,456	5.107	3,258	6,773	4,235	1,807	24,636	3,338	2,863	3,528	3,306	3,466	3,203	19,704	4,106	3,284
Meerut	3,089	3,363	3,963	7,809	1,840	1,323	21,387	1,884	1,891	2,029	1,916	1,726	2,193	11,639	3,564	1,940
Bulandshahr ...	1,306	2,842	4,530	8,065	3,032	3,860	18,635	5,000	2,100	3,642	3,641	3,000	3,200	20,583	3,106	3,430
Aligarh	824	1,091	1,413	2,637	1,153	2,021	9,139	3,374	2,400	2,738	2,800	2,582	2,599	16,493	1,523	2,749
Total ...	9,495	15,519	14,132	21,360	11,580	9,745	81,831	15,735	11,451	14,485	14,062	13,066	13,581	82,380	13,638	13,730
Muttra	455	957	1,222	638	1,641	826	5,739	2,000	2,545	1,980	1,597	2,000	1,647	11,769	956	1,961
Agra	1,001	1,476	1,885	1,591	1,278	1,766	8,997	3,317	2,572	2,792	3,042	3,400	3,726	18,849	1,499	3,141
Farukhabad ...	669	426	1,019	498	731	528	3,871	1,159	1,800	1,798	1,799	1,796	1,799	10,151	645	1,692
Mainpuri	619	814	1,189	1,225	1,255	1,510	6,612	1,196	1,800	1,219	1,070	1,300	1,812	7,897	1,102	1,316
Etáwah	394	155	292	80	500	203	1,624	1,358	1,086	1,396	1,137	1,071	1,008	7,056	271	1,177
Etah	638	762	782	720	826	1,089	4,817	1,395	1,200	1,195	1,200	1,399	1,299	7,688	803	1,281
Total ...	3,776	4,590	6,389	4,752	6,231	5,922	31,660	10,425	10,503	10,380	9,845	10,966	11,291	63,410	5,276	10,568
Bareilly	403	1,465	1,019	956	1,236	1,826	6,905	2,487	2,376	2,393	2,397	2,242	2,300	14,195	1,151	2,366
Bijnor	924	1,836	1,705	1,931	1,599	1,876	9,871	800	861	892	899	900	840	5,192	1,645	865
Budaun	612	924	686	765	715	1,094	4,796	811	1,300	1,124	1,300	1,500	1,248	7,283	799	1,214
Moradabad ...	1,545	3,961	2,726	1,713	1,620	1,293	12,858	2,047	2,100	1,600	1,599	1,386	1,598	10,330	2,143	1,722
Sháhjahánpur ...	288	1,150	610	270	545	536	3,399	1,238	1,197	1,173	1,765	1,660	1,484	8,517	566	1,419
Pilibhít	760	790	856	972	1,017	1,352	5,747	187	283	470	621	736	603	2,900	958	483
Total ...	4,532	10,126	7,602	6,607	6.732	7,977	43,576	7,570	8,117	7,652	8,581	8,424	8,073	48,417	7,262	8,069
Cawnpore	1,301	2,056	1,828	4,297	1,252	368	11,102	1,990	1,798	1,799	2,213	2,015	1,886	11,701	1,850	1,950
Fatehpur	804	524	387	811	658	781	3,965	1,433	1,300	1,400	1,460	1,396	1,400	8,389	661	1,398
Bánda	301	638	334	246	246	366	2,131	3,577	2,758	2,493	2,850	2,975	2,403	17,056	355	2,843
Hamírpur	277	321	262	340	503	381	2,084	1,800	1,498	1,476	1,709	1,541	1,527	9,551	347	1,592
Alláhabad	533	941	618	1,455	476	1,202	5,225	1,831	1,768	1,593	1,382	1,774	1,796	10,144	871	1,691
Jhansi	468	536	593	1,448	535	590	4,170	7,100	6,800	7,500	7,039	6,192	6,182	40,813	695	6,802
Jalaun	449	276	281	214	278	283	1,781	2,200	1,997	2,100	2,100	2,100	2,100	12,597	297	2,099
Total ...	4,133	5,292	4,303	8,811	3.948	3,971	30,458	19,931	17,919	18 361	18,753	17,993	17,294	1,10,251	5,076	18,375
Benares	1,120	1,014	1,924	2,940	751	2,901	10,650	981	942	997	1,000	1,500	1,200	6,620	1,775	1,103
Mirzapur	313	864	514	601	167	783	3,242	1,375	1,254	1,036	1,498	1,400	1,362	7,925	540	1,321
Jaunpur	4,079	2,929	2,736	1,051	1,780	804	13,379	2,010	2,098	2,292	2,085	2,200	2,238	12,923	2,230	2,154
Gházipur	280	443	552	682	498	644	3,009	600	727	850	990	898	900	4,965	502	828
Ballia	47	48	66	96	49	61	367	500	500	500	355	452	400	2,707	61	451
Total ...	5,839	5,298	5,792	5,370	3,155	5,193	30,647	5,466	5,521	5,675	5,928	6,450	6,100	35,140	5,108	5,857
Gorakhpur	146	113	544	765	525	764	2,857	1,199	1,343	1,400	1,380	1,457	1,484	8,263	476	1,377
Basti	81	272	282	197	95	654	1,581	400	312	500	700	693	870	3,475	264	579
Azamgarh	822	754	636	591	529	424	3,756	800	800	800	800	796	796	4,792	626	799
Total ...	1,049	1,139	1,462	1,553	1,149	1,842	8,194	2.399	2,455	2,700	2,880	2,946	3,150	16,530	1,366	2,755
Almora	...	...	...	2	...	...	2	250	250	267	300	300	300	1,667	...	278
Garhwál	...	...	...	120	181	102	403	450	598	799	797	800	761	4,205	68	701
Naini Tal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	...	...	...	122	181	102	405	700	848	1,066	1,097	1,100	1,061	5,872	68	979
Lucknow	547	740	741	804	686	685	4,203	1,510	1,464	1,808	1,446	1,643	1,260	9,131	701	1,522
Unao	347	666	210	206	32	278	2,033	346	404	494	439	452	440	2,575	339	429
Rae Bereli	104	120	54	164	112	254	808	565	978	845	654	1,100	1,291	5,433	135	905
Sitapur	103	163	313	433	573	846	2,431	857	932	989	947	985	1,164	5,874	405	979
Hardoi	89	232	1,448	239	262	757	3,027	1,128	1,240	1,355	1,649	1,574	1,561	8,507	504	1,418
Kheri	48	52	18	31	36	98	277	144	194	300	300	300	300	I.538	46	257
Total ...	1,238	1,973	2,784	I,877	1,989	2,918	12,779	4,550	5,212	5,791	5,435	6,054	6,016	33,058	2,130	5,510
Fyzabad	1,355	849	594	599	286	346	4,029	556	767	712	584	973	800	4,392	672	732
Gonda	59	232	354	210	270	822	1,947	500	629	594	548	241	763	3,275	325	546
Bahraich	114	164	673	431	390	348	2,120	889	800	900	845	899	900	5,323	353	887
Sultánpur	615	392	473	468	629	599	3,176	600	700	899	900	1,050	1,000	5,149	529	858
Partábgarh	502	882	616	276	286	842	3,404	630	576	600	600	800	700	3,906	567	651
Bara Banki... ...	183	528	1,286	1,127	1,523	1,310	5,957	1,000	1,000	1,500	1,320	1,500	1,500	7,820	993	1,303
Total ...	2,828	3,047	3,996	3,111	3,384	4,267	20,633	4,175	4,562	5.205	4,797	5,463	5,663	29,865	3,439	4,977
Grand Total ...	32,890	46,984	46,460	53,563	38,349	41,937	2,60,183	70,951	66,588	71,315	71,378	72,462	72,229	4,24,923	43,363	70,820
Lucknow Exotic plantation.	...	43	...	77	...	...	120	573	73	73	...	77	76	299	20	50
Do. date ,, ...	...	30	...	500	...	...	530		495	436	...	600	600	2,704	90	451
Agra Exotic ,, ...	...	...	...	380	...	...	380	400	400	...	...	400	...	1,200	63	200
Cawnpore Farm and Head-quarters.	...	...	...	397	...	...	397	250	350	548	...	780	400	2,328	66	388
Total ...	...	79	...	1,354	...	...	1,433	1.223	1,318	1,057	...	1,857	1,076	6,531	239	1,089
Grand Total ...	32,890	47,063	46,460	54,917	38,349	41,937	2,61,616	72,174	67,906	72,372	71,378	74,319	73,305	4,31,454	43,602	71,909

P. No. 02777—26-10-93. 366.—P.D.

ORDERS OF GOVERNMENT.

No. $\frac{877}{\frac{1-36B}{13}}$ OF 1894.

FROM

THE CHIEF SECRETARY TO GOVERNMENT,

N.-W. PROVINCES AND OUDH,

TO

THE DIRECTOR OF LAND RECORDS AND AGRICULTURE,

N.-W. PROVINCES AND OUDH.

DATED NAINI TAL, THE 12TH APRIL 1894.

SIR,

REVENUE DEPT.

I AM directed to acknowledge the report on Arboriculture for the year ending 31st March 1893, submitted with your letter No. $\frac{96}{1-1}$, dated 8th November 1893. The report used to be incorporated with that on the working of the Department of Land Records and Agriculture, but has now been submitted separately in accordance with the wishes of the Government of India.

2. The expenditure amounted to Rs. 73,305 and receipts to Rs. 41,937, against Rs. 74,319 and Rs. 38,349 in the preceding year.

3. The return of avenues now includes all existing avenues so far as known instead of, as formerly, only those in which operations are being conducted under the management of District Boards who are in charge of this branch of work. Instead of 5,447 miles the length of avenues at the beginning of the year is accordingly returned at 7,614 miles; and to this a length of 185 miles of new avenues was added during the year.

4. During the course of the year the issue of a pamphlet of instructions for the guidance of District Boards in the planting and maintenance of trees was drawn up by you, and sanctioned by Government. Attention was specially directed to the need of young plants for protection, and to the importance of not planting a greater number of trees than could be successfully established.. Among other matters the pamphlet gives a list of trees suitable for planting, with their descriptions. The planting by private enterprise of waste places with *babul* is eminently deserving of encouragement. On wide highways also *babúl* avenues are excellent, but they are unsuitable for narrow roadways, where the trees project over the road and where the fallen spines are a serious annoyance to foot passengers.

5. By recent orders issued in the Public Works Department, Commissioners are authorised to desire the District Engineer to look after trees on first class roads under his charge, and with the concurrence of the Commissioner and yourself funds may be transferred from the arboricultural grant to the Public Works Department.

6. In Jaunpur disinclination was exhibited by landowners and cultivators to the planting of trees: but in ten districts assistance from

private individuals is acknowledged. It is very desirable that the people should be taught to understand the value of plantations of trees, and much might be done in this way through the medium of District Board members. Where objections are raised, some reason for them will probably be found, and when this is ascertained the objections could either be explained away, or met by a judicious selection of the kind of tree planted.

7. Moradabad is a district in which attention should be devoted to planting first class roads. In Ballia and Etáwah the receipts should be capable of expansion. Generally efficient control over the proceedings of Tahsíldárs is necessary for the successful carrying out of arboricultural operations.

I have the honor to be,

SIR,

Your most obedient servant,

J. J. D. LATOUCHE,

Chief Secy. to Govt., N.-W. P. and Oudh.